

# From STIC SEARCH REPORT

l'oration supplémentaire se situe dans l'automatisation du refroidisseur clinker. Au moyen d'une mesure directe de la hauteur du lit de clinker, à glissière d'entrée du refroidisseur, avec le dispositif nommé "LevelRadar", les variations de la sortie du four sont détectées immédiatement et regularisées, dans la refroidisseur, par un réglage automatique du nombre de poussées de la grille. Une mesure de la température de l'air secondaire, réagissant rapidement et sans déviation, améliore l'évaluation thermique du refroidisseur de clinker. Le système de ventilation, éprouvé au cours de longues années et composé d'un module HE et d'une ventilation en arête de poisson, constitue la base du refroidisseur de clinker. A l'aide d'exemples est montré, qu'une combinaison conséquente de technique de procédé, mécanique et technique de régulation conduit à un abaissement des coûts d'exploitation. Dans ce contexte, le concept global de l'installation est aussi important, que les détails de construction des plaques de grille ou de la suspension de la grille.

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36/3,AB/19 (Item 3 from file: 144)  
DIALOG(R)File 144:Pascal  
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14011647 PASCAL No.: 99-0199259  
Process optimisation savings  
TURNELL V J  
Process/Environmental Engineer, Penta Engineering Corp., United States  
Journal: World cement, 1999, 30 (3) 91-96, 117-121 (10 p.)  
Language: English; Spanish  
Victor J. Turnell, P.E., Process/Environmental Engineer, Penta Engineering Corp., USA, explores methods of increasing the value of capital investments by optimising manufacturing processes, increasing production and reducing operating costs.

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36/3,AB/20 (Item 4 from file: 144)  
DIALOG(R)File 144:Pascal  
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11713906 PASCAL No.: 94-0578122  
Advanced control methods ensure **cost-effective clinker production**  
BAUER C; JAEGER G; KAUFMANN M; PATZER J; WALEN K H  
Journal: World cement, 1994, 25 (7) 43-46  
Language: English  
The PYROEXPERT optimization system ensures greater cost-effectiveness of kiln operation by combining expert technology and process modelling. Examples are used to explain the advanced control concept and the operator interface with graphic configuration based on modern hardware and software components. Illustrations are given of the transparency of the control sequences through the creation of a detailed explanation component, and the experience gained from plants with different kiln throughputs is summarized

36/3,AB/21 (Item 1 from file:-315)  
DIALOG(R)File 315:ChemEng & Biotec Abs  
(c) 2004 DECHEMA. All rts. reserv.

S41 AND S10  
202 S41  
306 S10  
S42 2 S41 AND S10

? TA  
>>> No matching display code(s) found in file(s): 65

42/3,AB/1 (Item 1 from file: 8)  
DIALOG(R)File 8:Ei Compendex(R)  
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02832673

E.I. Monthly No: EI8912126654  
Title: Aalborg Portland converts to the semi-dry process.  
Author: Borgholm, Hans E.; Nielsen, Peter B.  
Corporate Source: Aalborg Portland A/S, Aalborg, Den  
Source: IEEE Transactions on Industry Applications v 25 n 3 May-Jun 1989

p 486-494

Publication Year: 1989  
CODEN: ITIACR ISSN: 0093-9994

Language: English

Abstract: The investigations and tests made before deciding on the construction of a new 4400-STPD semi-dry **cement clinker production** system, which eliminates the traditional predrying of slurry in filter presses, are described. The new system incorporates a drying installation in which a chalk/sand slurry containing approximately 30% water is mixed with fly ash and dried to **raw meal** in two drier crushers using hot exhaust gas from the subsequent precalcining kiln system. A special feature of the kiln installation is the design of the two calciners, in which the combustion temperature can be controlled independently of the temperature and degree of calcination of the **raw meal** which is fed to the rotary kiln. This facilitates the use of low-volatile coals as well as pet coke. Estimated operational data for the new system are included. The net heat consumption of the entire system is estimated at less than 3.70 MBtu/ST **clinker**. 3 Refs.

42/3,AB/2 (Item 2 from file: 8)  
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01570720

E.I. Monthly No: EI8410100444  
E.I. Yearly No: EI84015335  
Title: BURNABILITY BASED ON PROCESS PARAMETERS FOR BETTER CLINKER PRODUCTION.

Author: Anon  
Source: Cem Res Inst India Res Bull RB 25-83 Jul 1983 28p  
Publication Year: 1983  
CODEN: CRIRDX ISSN: 0377-8460

Language: ENGLISH

Abstract: The report discusses a study into a typical case of poor burning with severe constraints on moduli manipulation, through a scientific approach to the burning problem. Several process parameters, such as material movement in the kiln, temperature profile of material, gas flows and theoretical heat requirement have a direct bearing on the complex parameter 'burnability', relevant to the particular kiln. These process parameters have been worked out after suitable plant studies. Particularly, the movement of material down the kiln, from the **slurry** stage to **clinkerization**, has been studied for the first time in India using

PATENT(s): SHIN NIPPON KAGAKU KOGYO CO LTD [351135] (A Japanese Company or Corporation), JP (Japan)  
APPL. NO.: 63-239756 [JP 88239756]  
FILED: September 27, 1988 (19880927)  
JOURNAL: Section: C, Section Number 730, Volume 14, Number 284, Pg. 55, June 20, 1990 (19900620)

#### ABSTRACT

PURPOSE: To obtain high quality and high density spinel **clinker** at a low cost by using alumina and magnesium hydroxide each having specified properties of particles as starting materials.

CONSTITUTION: When alumina is mixed with magnesium hydroxide and calcined to produce spinel **clinker**, alumina having  $\geq 2.5 \text{m}(\sup 2)/\text{g}$  specific surface area and containing  $\geq 60\text{wt.\%}$  particles of  $\leq 5\mu\text{m}$  particle size and magnesium hydroxide containing  $\geq 90\text{wt.\%}$  particles of  $\leq 10\mu\text{m}$  particle size are used as starting materials.

39/3, AB/1 (Item 1 from file: 8)  
DIALOG(R) File 8:Ei Compéndex(R)  
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04617349

E.I. No: EIP97023520547

Title: Heavy metal outputs from a cement kiln co-fired with hazardous waste fuels

Author: Guo, Qizhong; Eckert, James O. Jr.

Corporate Source: State Univ of New Jersey, Piscataway, NJ, USA  
Source: Journal of Hazardous Materials v 51 n 1-3 Nov 1996. p 47-65  
Publication Year: 1996  
CODEN: JHMAD9  
Language: English

**Abstract:** Measured data from a kiln equilibration test are analyzed for heavy metal outputs from a cement kiln co-fired with hazardous waste fuels. Metal outputs from stack emissions, cement kiln dust and cement clinker are considered. Equations are derived for predicting all three metal outputs at any hazardous waste feed rate under steady state conditions. Through analysis of two steady state conditions, at the beginning and end of the equilibration test, essentially the same ratios of metal feed rates are found to be distributed to the kiln dust at either high or low metal feed rates. Applying the same distribution ratios in the derived equations, metal concentrations of wasted kiln dust are predicted when the kiln is not using hazardous waste fuels. Measured concentrations of arsenic, beryllium, cadmium, chromium, and lead in wasted kiln dust, at the highest intended hazardous waste feed rates to the kiln, are 68, 10, 72, 18, and 68 times those predicted for feed rates with no hazardous waste. In addition, the intermediate, non-steady state segment of the equilibration test is analyzed. If metals are assumed not to accumulate in the kiln, the intermediate metal concentrations in cement clinker are predicted to be substantially higher than those at the final steady state. (Author abstract) 12 Refs.

39/3,AB/2 (Item 2 from file: 8)  
DIALOG(R) File 8:Ei Compendex(R)  
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01838740  
E.I. Monthly No: EI8512117206  
E.I. Yearly No: EI85046792  
Title: SUCCESSFUL HANDLING OF ALTERNATIVE FUELS.  
Author: Kaldeway, F.  
Corporate Source: Beumer Maschinenfabrik, Beckum, West Ger  
Source: World Cement v 16 n 9 Nov 1985 p 344-346  
Publication Year: 1985  
CODEN: WOCEDR ISSN: 0263-6050  
Language: ENGLISH

**Abstract:** The achievement of pollution-free combustion of industrial waste materials - especially scrap motor tyres and shredded rubber waste - is a much explored subject. The firing of such alternative fuels should not increase the emission of noxious substances into the atmosphere where sophisticated filter systems are already employed. Attention must, however, also be given to handling methods for improved efficiency. In particular equipment that allows a high degree of automated operation is most desirable because waste-derived fuels present considerable difficulties when it comes to maintaining an accurately controlled feed rate. This article reviews the various stages in a practical automated handling installation which has proved efficient for motor tyres and shredded rubber waste. 4 refs.

39/3,AB/3 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
(c) 2004 Thomson Derwent. All rts. reserv.

19/3,AB/1 (Item 1 from file: 2)

DIALOG(R) File 2:INSPEC

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02392184 INSPEC Abstract Number: B85014629, C85009371

Title: Experience with flowmeters for kiln feeding at Ideal Basic Industries, Cris Dobbins Plant, Theodore, Alabama

Author(s): Peterson, G.D.; Rebucci, G.

Author Affiliation: Ideal Basic Ind., Theodore, AL, USA

Conference Title: 26th IEEE Cement Industry Technical Conference (Catalog No. 84CH1989-3) p.II.4/1-9

Publisher: IEEE, New York, NY, USA

Publication Date: 1984 Country of Publication: USA 600 pp.

U.S. Copyright Clearance Center Code: CH1989-3/84/0000-0007\$01.00

Conference Sponsor: IEEE

Conference Date: 21-24 May 1984 Conference Location: Anaheim, CA, USA

Language: English

Abstract: The authors present the solution to a problem common to fine powder handling and feeding, and also describes the production flow process of a modern cement plant. In the system described, the solids flowmeter system utilizes the principle of conservation of momentum to measure flow rate. The controller compares the measured flow rate to the set point and adjusts the flow control valve on the airslide to maintain the desired feed rate of raw meal.

Subfile: B C

19/3,AB/2 (Item 1 from file: 8)

DIALOG(R) File 8:Ei Compendex(R)

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05497521

E.I. No: EIP00025061003

Title: Modern metering technology throughout the cement manufacturing process

Author: Ehrenhuber, Wolfgang

Corporate Source: PFISTER GmbH, Augsburg, Ger

Conference Title: Proceedings of the 1999 IEEE-IAS/PCA Cement Industry Technical Conference

Conference Location: Roanoke, VA, USA Conference Date: 19990411-19990415

E.I. Conference No.: 55831

Source: IEEE Cement Industry Technical Conference (Paper) 1999. p 143-149

Publication Year: 1999

CODEN: ICIPDM ISSN: 0731-4906

Language: English

Abstract: This paper describes a new type of weighfeeder designed specifically for the feeding and blending applications of difficult to handle materials found in the cement manufacturing process. The design and control scheme is described along with the features that address the requirements for handling specific materials such as, coal, coke, raw meal, fly ash, and alternate fuels. (Author abstract)

19/3,AB/3 (Item 2 from file: 8)

DIALOG(R) File 8:Ei Compendex(R)

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01588587

E.I. Monthly No: EI8411114098

36/AB/1 (Item 1 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

6306740 INSPEC Abstract Number: B1999-09-8670-009, C1999-09-3350N-007

Title: Cape Girardeau's low cost 100000 ton **clinker** expansion

Author(s): Burian, J.E.; Zolotsky, S.J.

Conference Title: 1999 IEEE/-IAS/PCA Cement Industry Technical

Conference. Conference Record (Cat. No.99CH36335) p.279-95

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 1999 Country of Publication: USA 429 pp.

ISBN: 0 7803 5523 7 Material Identity Number: XX-1999-00125

U.S. Copyright Clearance Center Code: 0 7803 5523 7/99/\$10.00

Conference Title: Proceedings of 41st Cement Industry Technical

Conference

Conference Date: 11-15 April 1999 Conference Location: Roanoke, VA,

USA

Language: English

Abstract: Lone Star Industries, Inc. (LSI) operates a cement plant at Cape Girardeau, Missouri, USA. The Fuller Company was requested to study the operation of the plant's raw grinding and pyro-processing systems and evaluate if an increase in the nominal **clinker production** could be achieved. The impetus for the evaluation was Lone Star's desire to meet the future cement sales demand for the Mississippi Valley market. The evaluation team involved Fuller process and mechanical specialists who visited the site and surveyed the existing plant operations to determine the limitations of the process machinery, recommend operational changes and develop a report with their findings. All recommendations had to emphasize re-using as much of the existing equipment as possible in order to arrive at an economically justifiable solution, in terms of both capital investment and the shortest possible downtime.

Subfile: B C

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36/3,AB/2 (Item 2 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2004 Institution of Electrical Engineers. All rts. reserv.

00474679 INSPEC Abstract Number: B73007639

Title: Planetary vs. grate coolers

Author(s): Enkegaard, T.; Ellis, C.B.

Author Affiliation: F.L. Smidth & Co. A/S Copenhagen, Denmark

Conference Title: Proceedings of the 1972 Seventh Annual Meeting of the IEEE Industry Applications Society p.213-20

Publisher: IEEE, New York, NY, USA

Publication Date: 1972 Country of Publication: USA xx+861 pp.

Conference Sponsor: IEEE

Conference Date: 9-12 Oct. 1972 Conference Location: Philadelphia, PA,

USA

Language: English

Abstract: The selection of a cement clinker cooler is usually based on the quality of **clinker** produced, grindability of the **clinker**, burning conditions and **cost** considerations. It is shown that while the first three of these factors are satisfied equally well by the planetary and grate cooler, the planetary cooler has a decided **cost** advantage.

Subfile: B

3,AB/3 (Item 1 from file: 6)

DIALOG(R) File 6:NTIS

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1690574 NTIS Accession Number: PB93-114205

Suspension Process for Cement Synthesis. Final Report, April-September  
1985

Tiwary, R.

Avco-Everett Research Lab., Inc., Everett, MA.

Corp. Source Codes: 061902000

Sponsor: Gas Research Inst., Chicago, IL.

Report No.: GRI-85/0188

Oct 85 74p

Languages: English

Journal Announcement: GRAI9303

Sponsored by Gas Research Inst., Chicago, IL.

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NTIS Prices: PC A04/MF A01

An analytical study and economical evaluation of a suspension furnace for synthesizing cement clinker from batch materials is described. Pellets made of batch materials are sprayed from the top of a cylindrical furnace, natural gas is fired in the middle, and combustion air is introduced from the bottom. The freely falling pellets heat up to clinkering reaction temperature and then cool down in the upcoming cold air. A model was generated to predict temperature and velocity of gas and particles at various locations in the furnace. Several possible designs of the furnace were generated using the model. The cost of producing cement clinker using the new design as well as using the best available current technology was evaluated. Both capital and operating cost were determined. The suspension furnace will produce cement at a lower cost primarily because the simpler furnace is less expensive to build. The potential application of the process was determined to be in retrofitting old kilns and in new cement plants built to meet increased demand.

36/3,AB/4 (Item 1 from file: 8)

DIALOG(R) File 8:Ei Compendex(R)

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06758165

E.I. No: EIP04128062237

Title: Shemal expansion

Author: Richter, Gerard; Fard, Ali Memari

Corporate Source: CEMAG Anlagenbau Hameln, Hameln, Germany

Source: World Cement v 35 n 2 February 2004. p 21-22+24-26

Publication Year: 2004

CODEN: WOCEDR ISSN: 0263-6050

Language: English

Abstract: In 2001, CEMAG Anlagenbau was awarded a feasibility study to examine the most economical way to optimize and expand production at the Shemal Cement plant to 4000 tpd, and alternatively 4800 tpd, clinker production. Based on detailed studies of technological possibilities, logistics, as well as surveys of existing equipment, a number of different solutions involving reasonable investment costs were put forward to the plant management. Evidence suggests that the optimization of existing equipment and an extension up to 4000 t.

Language: German  
Abstract: This article answers questions as to how different forms to  
vary kilns construction and fluctuations in kiln operation are liable to  
affect the durability of refractory products and the cost of  
clinker production in cement plants. Furthermore, the  
scope in choosing refractory products is discussed, and it is proposed that  
the information given in manufacturers' catalogs be made clearer and that  
specifications be agreed as an integral part of orders. Since most cement  
plants cannot perform standard quality checks on the refractory materials  
they receive, a general neutral test on despatch is proposed. (Edited  
author abstract) In German. 8 refs.

36/3,AB/10 (Item 7 from file: 8)  
DIALOG(R)File 8: Ei Compendex(R)  
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02157909  
E.I. Monthly No: EI8701001181  
Title: INVESTIGATIONS OF NATURAL POZZOLAN-PORTLAND CEMENT MORTARS IN  
TANZANIA.

Author: Makange, A. A.; Massawe, N. M.  
Corporate Source: Alfi East Africa Ltd  
Source: Journal of Ferrocement v 16 n 3 Jul 1986 p 255-262  
Publication Year: 1986  
CODEN: JOFEDZ ISSN: 0125-1759

Language: ENGLISH  
Abstract: Portland-pozzolana cement (PPC) has been prepared by  
inter-grinding cement clinker gypsum and natural pozzolana. The natural  
pozzolana (pumice) found in Mbeya-Tanzania, has been established to possess  
high pozzolanicity of 11. 36 N/mm\*\*2. It is also established that, the  
Mbeya pozzolana can replace ordinary portland cement (OPC) by up to 40% by  
weight without having ill effect on OPC properties at the age of 112 days.  
At ages under 112 days PPC develops lower strength than that of OPC. For  
PPC containing more than 40% by weight pozzolana, the strength attained are  
always lower than that of OPC. In Tanzania, introduction of pozzolana as  
partial replacement for OPC by 40% by weight would reduce **production**  
**costs of cement-clinker** by over 30% and increase production  
capacity by 40%. (Author abstract) 22 refs.

36/3,AB/11 (Item 8 from file: 8)  
DIALOG(R)File 8: Ei Compendex(R)  
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01988092  
E.I. Monthly No: EI8607055467  
E.I. Yearly No: EI86014371  
Title: RENOVATION AND CONVERSION OF CEMENT PLANTS - AN OVERVIEW.  
Author: Taddei, Roger  
Corporate Source: Lafarge Coppee Lavalin  
Source: World Cement v 17 n 1 Jan-Feb 1986 p 27-30  
Publication Year: 1986  
CODEN: WOCEDR ISSN: 0263-6050  
Language: ENGLISH

Abstract: For more than 20 years the Lafarge Coppee group has had a  
policy of building and modernizing existing plants with the essential aim  
of making them more productive and more competitive. Efforts have  
concentrated on the main aspects involved in the **cost** of producing  
clinkers and cements, and more specifically: energy savings,

ductivity, use of additives to the clinker, and reduction of investment costs. The aim has been and will continue to be the production of elements with precise chemical and physical properties at the most attractive cost. This article focuses on the technical, aspects of the modernization projects.

36/3,AB/12 (Item 9 from file: 8)  
DIALOG(R) File 8:Ei Compendex(R)  
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01812064  
E.I. Monthly No: EI8510086793  
E.I. Yearly No: EI85013868  
Title: CONSTRUCTION OF NEW CLINKER PRODUCTION LINE AT ANTOING, BELGIUM.

Author: Hellofs, Leonard  
Corporate Source: Technip, Process Dep, Suresnes, Fr  
Source: World Cement v 16 n 1 Jan-Feb 1985 p 3-5  
Publication Year: 1985  
CODEN: WOCEDR ISSN: 0263-6050  
Language: ENGLISH  
Abstract: Ever increasing costs of traditional fuels forces cement producers to call on new sources of supply and to make necessary investments to replace the existing units with equipment ensuring the reduction of energy consumption. Constructors are thus faced with new problems arising from the use of low grade fuels usually containing elements which are detrimental to both the quality of the clinker and the satisfactory operation of the units. At the same time, the performance of the equipment requires continuous improvement with a view to minimizing specific energy consumption. Refs.

36/3,AB/13 (Item 10 from file: 8)  
DIALOG(R) File 8:Ei Compendex(R)  
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00235637  
E.I. Monthly No: EI72X038344  
Title: Pollution and the clinker cooler- 1.  
Author: JACKSON, W. S.  
Source: Pit & Quarry v 64 n 1, 2 July 1971 p 120-3, 48 Aug p 82-6, 96  
Publication Year: 1971  
CODEN: PIQUA ISSN: 0032-0293  
Language: ENGLISH  
Abstract: Of all the problems today confronting management in the cement industry, the one whose solution may seem the least rewarding is the problem of abatement of pollution from hundreds of clinker cooler vent stacks. Two-part paper discusses title problem and describes some solutions of the problem. Dust collecting equipment applicable for control of emission from grate-type clinker cooler vents is examined. For the open-plant, the engineer should develop the probable total unit cost / bbl of clinker produced over the life of proposed equipment and thus arrive at the optimal solution.

36/3,AB/14 (Item 1 from file: 34)  
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
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11590 Genuine Article#: 680JJ Number of References: 0  
Title: Operational experience with an RSP Minox Calciner at the Lixhe cement plant (ABSTRACT AVAILABLE)

Author(s): Gastout B; Delcour F

Journal: ZKG INTERNATIONAL, 2003, V56, N4, P64-68

ISSN: 0949-0205 Publication date: 20030000

Publisher: BAUVERLAG GMBH, PRESSEHAUS, AM KLINGENWEG 4A, D-65396 WALLUF,

GERMANY

Language: German Document Type: ARTICLE

Abstract: The last wet kiln line of the Lixhe cement works of the CBR group was shut down in 2001 within the framework of a conversion project. The other existing kiln line operating according to the dry process was given a facelift. Due to the conversion of the preheater and the installation of a new calciner type RSP Minox, the plant capacity could be increased from formerly 1 Mta to 1.35 Mta of clinker. In addition to the increase of the plant capacity, the productivity of the works could also be increased due to saving of labour. Furthermore, the clinker production costs could be optimized due to the utilization of the maximum possible amount of secondary fuels and, all emissions were reduced thus better discharging the environmental duties. The conversion of all ESP systems into baghouses resulted in a reduction of the dust emissions. Since the beginning of the conversion in July 2001, all goals of the project have been reached or even exceeded.

36/3, AB/15 (Item 2 from file: 34)  
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci

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02491898 Genuine Article#: LE739 Number of References: 2

Title: COST-EFFECTIVE CLINKER PRODUCTION WITH THE

PYROEXPERT OPTIMIZATION SYSTEM (Abstract Available)

Author(s): BAUER C; JAGER G; KAUFMANN M; PATZER J; WALEN KH

Corporate Source: HUMBOLDT PROZESSAUTOMAT GMBH/W-5000 COLOGNE 41//GERMANY/

Journal: ZEMENT-KALK-GIPS, 1993, V46, N4 (APR), P182&

ISSN: 0722-4400

Language: GERMAN Document Type: ARTICLE

Abstract: The new PYROEXPERT optimization system ensures greater cost-effectiveness of kiln operation by combining expert technology and process modelling. Examples are used to explain the advanced control concept and the operator interface with graphic configuration based on modern hardware and software components. Illustrations are given of the transparency of the control sequences through the creation of a detailed explanation component, and the experience gained from plants with different kiln throughputs is summarized.

36/3, AB/16 (Item 3 from file: 34)  
DIALOG(R) File 34:SciSearch(R) Cited Ref Sci  
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01111391 Genuine Article#: FW874 Number of References: 0  
(NO REFS KEYED)

Title: SHELL TEMPERATURE-MEASUREMENTS ON ROTARY KILNS (Abstract Available)

Author(s): SPECHT H

Journal: ZEMENT-KALK-GIPS, 1991, V44, N6, P291-298

Language: GERMAN Document Type: ARTICLE

Abstract: The use of infrared optical measuring methods for non-contact measurement of the thermal radiation from the kiln shell, which is then

file: Bag-house dust used in clinkerization of portland cements.  
AUTHOR: Singh, N.B. ; Bhattacharjee, K.N. ; Shukla, A.K.  
CORPORATE SOURCE: Univ. of Gorakhpur Gorakhpur India  
JOURNAL: Am. Ceram. Soc. Bull., Volume: 74, Issue: 12, Page(s): 78-83  
CODEN: ACSBA7 ISSN: 00027812  
PUBLICATION DATE: 1995 (950000) LANGUAGE: English

**ABSTRACT:** Production of Ordinary Portland Cement (OPC) is increasingly expensive due to the high energy requirement. Waste materials such as bag-house dust (BHD, from electric arc furnace of a calcium carbide plant) can be added during clinkerization to reduce overall cost. This work looks at the effect of adding 10% BHD to black meal used in vertical shaft kiln clinkerization in a cement plant. The hydration properties of OPC made from control and experimental clinkers were studied. Water consistency, setting times, compressive strength, Le-chatelier expansion and autoclave tests were conducted on samples. Incorporation of 10% BHD led to 2% fuel saving, reduced CO<sub>2</sub> emissions and higher output. The blends produced had higher compressive strength without lowering initial strengths. (Moore).

36/3,AB/23 (Item 1 from file: 350)  
DIALOG(R) File 350:Derwent WPIX  
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015623426

WPI Acc No: 2003-685597/200365

XRPX Acc No: N03-547622

Waste material melting furnace has thermometer embedded into tip of main tuyere that blows oxygen-containing gas into high temperature combustion zone

Patent Assignee: NKK CORP (NIKN)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 2003254525	A	20030910	JP 200258309	A	20020305	200365 B

Priority Applications (No Type Date): JP 200258309 A 20020305

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 2003254525	A	6	F23G-005/50	

Abstract (Basic): JP 2003254525 A

Abstract (Basic):

NOVELTY - A thermometer (30) is embedded into the tip of a main tuyere (14), which blows oxygen containing gas into a high temperature combustion zone (51). The combustion zone melts the residue produced from heating and thermally decomposing waste material (50). The thermometer measures the temperature of the molten slag in the furnace interior.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for an operation method of a waste material melting furnace.

USE - For melting waste material e.g. municipal solid waste, shredder dust.

ADVANTAGE - Molten slag temperature can be measured accurately and continuously, and can be adjusted exactly and rapidly according to change of heat energy released from waste. Ensures stable operation of furnace, without resulting in excessive temperature rise of furnace. Prolongs furnace durability, thus reducing furnace repair cost.

46/3,AB/1 (Item 1 from file: 2)

DIALOG(R)File 2:INSPEC

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7290779 INSPEC Abstract Number: B2002-07-8670-009, C2002-07-3350N-004

Title: The Kosmosdale expansion project [**cement** plant upgrade]

Author(s): Rowley, A.; Babel, D.

Conference Title: IEEE-IAS/PCS 2002 Cement Industry Technical Conference.

Conference Record (Cat. No.02CH37282) p.151-67

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 2002 Country of Publication: USA 360 pp.

ISBN: 0 7803 7254 9 Material Identity Number: XX-2002-01640

U.S. Copyright Clearance Center Code: 0-7803-7254-9/02/\$10.00

Conference Title: IEEE-IAS/PCA 2002 Cement Industry Technical Conference.

Conference Record

Conference Date: 5-9 May 2002 Conference Location: Jacksonville, FL,

USA

Language: English

Abstract: Kosmos **Cement** Company, a partnership between Southdown (now CEMEX, responsible for operation) and Lonestar Industries (now Heidelberger) decided in 1998 to increase the **clinker** production of the Kosmosdale plant from 2500 stpd to 4700 stpd. To achieve this capacity increase of almost 90%, extensive additions and modifications had to be made in almost all manufacturing areas. These main areas were the quarry stockpile stacker and river load out conveying, a new higher capacity rock barge fleet, upgrades to the limestone unloading conveying system, limestone storage, **raw meal** transport, **kiln** feed system, pyro-process system, coal grinding, **clinker** handling, finish grinding system, **cement** storage and barge loading system, an addition to the main electrical substation and a new plant wide control PLC/HMI automation system. The paper describes the many challenges to execute this unique project in tight and restricted areas while at the same time maintain ongoing plant operation. Only a three month general plant shut down was scheduled for demolition and replacement of the existing gyro-process equipment and tie-ins of the various areas into the existing systems. Due to the time constraints this paper concentrates mainly on the pyro-process area.

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46/3,AB/2 (Item 2 from file: 2)

DIALOG(R)File 2:INSPEC

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6306733 INSPEC Abstract Number: B1999-09-7320W-003

Title: New digital flow meter technology benefits **cement** manufacturers

Author(s): Calvino, G.T.; Hardin, D.

Author Affiliation: K-Tron Hasler, Pitman, NJ, USA

Conference Title: 1999 IEEE-IAS/PCA Cement Industry Technical Conference. Conference Record (Cat. No.99CH36335) p.151-64

Publisher: IEEE, Piscataway, NJ, USA

Publication Date: 1999 Country of Publication: USA 429 pp.

ISBN: 0 7803 5523 7 Material Identity Number: XX-1999-00125

U.S. Copyright Clearance Center Code: 0 7803 5523 7/99/\$10.00

Conference Title: Proceedings of 41st Cement Industry Technical Conference

Conference Date: 11-15 April 1999 Conference Location: Roanoke, VA, USA

Language: English

Abstract: The importance of weighing technology in cement processing cannot be understated, both in terms of maintaining control of the process and the resultant quality of the product. The need to meet stringent quality specifications, operate plants efficiently, and reduce downtime are driving cement producers to apply the latest technologies to plant management. Any definition of an ideal solids flow measuring device must not only include high performance accuracy, but must also encompass attributes that center on simplicity of design, long term operational stability, low or no maintenance, insensitivity to ambient conditions, durability, and the ability to zero without interruption of the process. Expert control systems depend on reliable data from the process to manage the kiln. Weighing and feeding operations provide crucial measurement and control parameters in cement production and the expert control systems that govern and regulate the process. Weighing and feeding is central to raw recipe formulation, cement reject measurement, kiln firing, and kiln feeding of raw meal. Weighing operations provide the means to measure process conditions, determine needed adjustments, and maintain accurate records of material usage and production. Plant operating efficiency simply cannot be maximized without the most accurate, stable and reliable weighing/feeding systems. This paper presents a new approach to all-digital flow meter design, beginning with a description of its underlying weighing technology, moving to a description of the meter's operating principle, and case studies of its application in cement plants.

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46/3,AB/3 (Item 3 from file: 2)

DIALOG(R) File 2:INSPEC

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5520905 INSPEC Abstract Number: C9704-7480-167  
Title: An expert system for rotary kiln control

Author(s): Devedzic, V.B.

Author Affiliation: Dept. of Autom. & Control, Mihailo Pupin Inst.,  
Belgrade, Yugoslavia

Conference Title: The First World Congress on Intelligent Manufacturing  
Processes and Systems. Proceedings Part vol.2 p.920-9 vol.2

Publisher: Univ. Puerto Rico, San Juan, Puerto Rico

Publication Date: 1995 Country of Publication: Puerto Rico 2 vol.  
(xii+xx+1399) pp.

Material Identity Number: XX97-00420  
Conference Title: Proceedings of 1st World Congress on Intelligent  
Manufacturing Processes and Systems

Conference Sponsor: Int. Inst. Production Eng. Res.; IEEE  
Conference Date: 13-17 Feb. 1995 Conference Location: Mayaguez/San  
Juan, Puerto Rico

Language: English

Abstract: The paper describes an expert system for real-time control of rotary cement kiln operation. Rotary kiln is the central and the most complex component of cement production process. Its task is to take an appropriate mixture of input material ("raw meal"), and to gradually burn and bake it to produce clinker, coarse-grained pieces of cement which are then transported away from the kiln and milled in a special mill to get the cement dust. The kiln itself is a complex cylindrical device, consuming fuel to get preheated to a high temperature necessary to produce clinker. It rotates around its axis and the raw meal dust